CALIFORNIA HORNED LARK (*Eremophila alpestris actia*)

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Criteria Scores

Population Trend	Range Trend	Population Size	Range Size	Endemism	Population Concentration	Threats
5	5	2.5	5	7.5	0	15

Special Concern Priority

Currently considered a Bird Species of Special Concern, Priority 3. Included on CDFG's 1992 unprioritized list.

Breeding Bird Survey Statistics for California

Data inadequate for trend assessment at the subspecies level (Sauer et al. 2000).

General Range and Abundance

Holarctic in distribution, occurring from the Arctic south to central Asia and Mexico, with outlying populations in Morocco and Columbia (Beason 1995). In North America, breeds from western and northern Alaska, the Arctic coast of northern Canada, northern Quebec, northern Labrador, and Newfoundland south to southern Baja California, central Sonora, western Veracruz and Oaxaca, and to the Gulf Coast, northern Louisiana, southern Missouri, southern Tennessee, northwestern Mississippi, northern Alabama, and South Carolina (AOU 1998, Beason 1995). Of 21 subspecies breeding in the U.S., nine nest in California, including *E. a.actia*, the California horned lark, which breeds along the coast ranges from Humboldt County south to northern Baja California (AOU 1957, Beason 1995, Pyle 1997).

Seasonal Status in California

Resident within its breeding range (Behle 1942, Grinnell and Miller 1944). The breeding season of *E. a. actia* is not well known, but Small (1994) notes that horned larks in the higher mountains of California are on nesting territories by April. Singing males are often seen in suitable breeding

habitat by early March in the interior valleys of cismontane southern California (S. Myers pers. obs.).

Historical Range and Abundance in California

Grinnell and Miller (1944) described the California horned lark's range as the "coastal region of State, chiefly from Sonoma County southeast to Mexican boundary in San Diego County; also main part of the San Joaquin Valley (save for extreme [southern] end where it merges into race *ammophila*), east to foothills of Sierra Nevada." Also mentioned were isolated colonies in Humboldt County. In addition to the coastal slope, the species was also noted to occur up to 8500 ft (2590 m) in the Transverse and Peninsular ranges. Small (1994) lists San Gorgonio Peak, at almost 11,500 ft (3500 m), as a breeding site. Grinnell and Miller stated that it was, "on suitable terrain, abundant." Willett (1912) considered it to be abundant in southern California from the coast to the base of the mountains.

Recent Range and Abundance in California

Recent range is geographically similar to the historic range, but urbanization has fragmented it substantially. Metropolitan areas now occur at portions of the state which formerly contained suitable breeding habitat for the lark, such as at Los Angeles, San Francisco, San Diego, and others. Evidence of population declines of *E.a. actia* in southern California was noted by Garrett and Dunn (1981), Small (1994), and Lehman (1994).

Ecological Requirements

During the breeding season, California horned larks occur in grasslands, agricultural fields, sparse shrubland, and bare ground (such as areas graded for construction or weed abatement). In general, Horned Lark subspecies rangewide prefer the barest habitats available (Beason 1995). Behle (1942) mentions that the California Horned Lark occurs in "stubble fields, alkali flats, sea plains along the ocean front, roadways, and, in mountain regions, on valley floors sparsely covered with vegetation." Seeds are the primary food of Horned Larks, with insects fed to the young. The larks forage for

seeds while walking, and pursue insects that are flushed from the ground (Beason 1995). Nests are located in depressions (natural or dug by female) in bare areas, and are constructed of grasses, lined with down, fur, feathers, or other fine material. Clutch sizes vary from 2-5 eggs. Horned Larks are known to be infrequent hosts of the Brown-headed Cowbird (*Molothrus ater*), and parasitism of *E. a. actia* is not known (Friedmann 1963, Friedmann et al. 1977, Friedmann and Kiff 1985).

Threats

Continuing urbanization of the open plains and grasslands of California is reducing suitable habitat for *E. a. actia*. Some formerly unsuitable sites become ephemeral breeding sites during grading for housing construction, but these sites are temporary and often do not persist long enough for successful breeding (P. Unitt *in litt*., S. Myers pers. obs.). Nesting success also affected by ongoing agricultural operations, when fallow fields hosting breeding larks are returned to active cultivation. Pesticides used in agricultural operations have reportedly killed horned larks (Beason 1995); the affect of pesticide poisoning of *E. a.* actia it is not known.

Management and Research Recommendations

In southern California, management for other species may benefit *E. a. actia*. The range and habitat of the Stephens' kangaroo rat (*Dipodomys stephensi*) coincides with that of *E. a. actia* in western Riverside and northern San Diego counties. Habitat conservation plans for the kangaroo rat and multiple species habitat conservation plans (MSHCP) in San Diego, Riverside, and Orange counties may ensure the preservation of habitat for *E. a. actia*. Riverside County's MSHCP includes *E. a. actia* as one of its species targeted for protection.

Monitoring Needs

Breeding Bird Survey data may be useful for monitoring of *E. a. actia* if routes within the subspecies' range can be segregated. Additional routes should be considered to more fully monitor suitable habitat within the state.

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Literature Cited

American Ornithologists' Union. 1957. Check-list of North American Birds, 5th ed. American Ornithologists' Union, Washington, D.C.

American Ornithologists' Union. 1998. Check-list of North American Birds, 7th ed. American Ornithologists' Union, Washington, D.C.

Beason, R. C. 1995. Horned Lark (*Eremophila alpestris*), in The Birds of North America (A. Poole and F. Gill, eds.), no. 195. The Birds of North America, Inc., Philadelphia.

Behle, W. H. 1942. Distribution and variation of the Horned Larks of western North America. Univ. Calif. Publ. Zool. 46:205-316.

Bent, A.C. 1942. Life histories of North American flycatchers, larks, swallows, and their allies. U.S. Natl. Mus. Bull. 179.

Friedmann, H. 1963. Host relations of the parasitic cowbirds. U.S. Natl. Mus. Bull. 233.

Friedmann, H., and Kiff, L.F. 1985. The parasitic cowbirds and their hosts. Proc. West. Found. Vertebr. Zool. 2.

Friedmann, H., Kiff, L.F., and Rothstein, S.I. 1977. A further contribution to knowledge of the host relations of the parasitic cowbirds. Smithson. Contrib. Zool. 235.

Garrett, K., and Dunn, J. 1981. Birds of southern California: Status and distribution. Los Angeles Aud. Soc., Los Angeles, CA.

Grinnell, J., and Miller, A.H. 1944. The distribution of the birds of California. Pac. Coast Avifauna 27.

Lehman, P.E. 1994. The birds of Santa Barbara County, California. Vertebrate Museum, University of California, Santa Barbara, CA.

Pyle, P. 1997. Identification Guide to North American Birds. Slate Creek Press, Bolinas, CA.

Sauer, J. R., Hines, J. E., Thomas, I., Fallon, J., and Gough, G. 2000. The North American Breeding Bird Survey, results and analysis 1966-1999. Version 98.1, USGS Patuxent Wildl. Res. Ctr., Laurel MD (http://www.mbr-pwrc.usgs.gov/bbs/bbs.html).

Unitt, P. 1984. The birds of San Diego County. San Diego Society of Natural History Memoir 13.

Willett, G. 1912. Birds of the Pacific slope of southern California. Pac. Coast Avifauna 7:1-122.